### (19) World Intellectual Property Organization

International Bureau





## (43) International Publication Date 24 June 2004 (24.06.2004)

**PCT** 

# (10) International Publication Number WO 2004/053384 A3

(51) International Patent Classification7:

B63B 27/24

(21) International Application Number:

PCT/NO2003/000414

(22) International Filing Date:

10 December 2003 (10.12.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2002 5926

10 December 2002 (10.12.2002) N

- (71) Applicant (for all designated States except US): MOSS MARITIME AS [NO/NO]; P.O.Box 120, N-1325 LYSAKER (NO).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KRISTENSEN, Per, Herbert [NO/NO]; Mallingsrudveien 28, N-1349 RYKKIN (NO). LIEN, Bjørn, R. [NO/NO]; Veslekroken 9, N-0379 OSLO (NO). CHRISTIANSEN, Per, Erik [NO/NO]; Morenen 62, N-1519 MOSS (NO). PETTERSEN, Leif, Harald [NO/NO]; Kongleveien

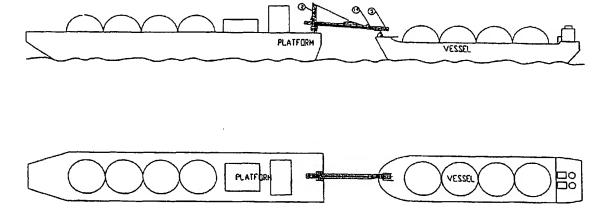
- 7, N-1664 ROLVSØY (NO). ARESHEV, Alexander [NO/NO]; Belsetv. 75, N-1348 RYKKIN (NO).
- (74) Agents: ONSAGERS AS et al.; P.O.Box 6963 St. Olavs plass, N-0130 OSLO (NO).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TT, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

with international search report

[Continued on next page]

(54) Title: SYSTEM AND METHOD TO TRANSFER FLUID



LNG OFFLOADING PRINCIPAL CONFIGURATION

(57) Abstract: The invention relates to a system to transfer fluid via at least one pipeline from one structure to another structure (such as a platform P and a vessel v respectively), in which one of the structures has an offloading arm 5 which is movable in to planes perpendicular to each other and in which a part of the offloading arm remote from the one structure is engagable with the other structure, so to allow linear and rotational movements between the structures. The pipeline along the offloading arm is configured to compensate for movements between the two structures in the longitudinal direction of the offloading arm.



- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
- (88) Date of publication of the international search report: 2 September 2004

#### **INTERNATIONAL SEARCH REPORT**

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 B63B27/24

According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

 $\begin{array}{ll} \mbox{Minimum documentation searched} \ \ \mbox{(classification system followed by classification symbols)} \\ \mbox{IPC 7} \ \ \ \mbox{B63B} \ \ \ \mbox{F16C} \end{array}$ 

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

Category °	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	US 4 315 533 A (EAGLES GEOFFREY J) 16 February 1982 (1982-02-16) abstract; figures 1-3	1-3,5-9, 11-14
x	US 4 735 167 A (WHITE GEOFF C ET AL) 5 April 1988 (1988-04-05) column 11, line 67 -column 12, line 48; figures 1,6,8,9 abstract	1-3,5-9, 11-14
X	US 4 376 452 A (TAX HANS ET AL) 15 March 1983 (1983-03-15) column 1, line 37 -column 2, line 50 abstract; figure 1	1,2,5,8, 9,11-14
	-/	
X Furth	er documents are listed in the continuation of box C. X Patent family members a	are listed in annex.

X Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
<ul> <li>Special categories of cited documents:</li> <li>"A" document defining the general state of the art which is not considered to be of particular relevance</li> <li>"E" earlier document but published on or after the international filing date</li> <li>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</li> <li>"O" document referring to an oral disclosure, use, exhibition or other means</li> <li>"P" document published prior to the international filing date but later than the priority date claimed</li> </ul>	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family
Date of the actual completion of the International search  2 April 2004	Date of mailing of the international search report  0 8. 07. 2004
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2  NL - 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  Fax: (+31-70) 340-3016	Authorized officer  GÓMEZ LAGERLÖF /EÖ

### INTERNATIONAL SEARCH REPORT

PCT/NO 03/00414

C.(Continue	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	FC1/NO 03/00414
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	EP 1 389 580 A (BLUEWATER ENERGY SERVICES BV) 18 February 2004 (2004-02-18) column 1, line 37 -column 2, line 25 abstract; figure 1	1,11,13,
A	US 3 721 260 A (STAHMER B) 20 March 1973 (1973-03-20) abstract; figure 1	6
	·	
	,	

#### INTERNATIONAL SEARCH REPORT

Information on patent family members

Internation No PCT/NO 03/00414

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 4315533	A	16-02-1982	GB NO	2024151 A ,B 792161 A ,B,	09-01-1980 03-01-1980
US 4735167	A	05-04-1988	WO CA EP	8607326 A1 1243554 A1 0222748 A1	18-12-1986 25-10-1988 27-05-1987
US 4376452	A	15-03-1983	DE FR NO	2945768 A1 2469367 A1 803409 A	27-05-1981 22-05-1981 14-05-1981
EP 1389580	Α	18-02-2004	GB EP	2391838 A 1389580 A1	18-02-2004 18-02-2004
US 3721260	Α	20-03-1973	NONE		